

84-969-13009

REPORT ON GEOPHYSICAL WORK

SUBMITTED FOR ASSESSMENT CREDIT

ON THE

CENTRAL GROUP OF CLAIMS

low, Expo, Tar, etc.

AREA LOCATION

Latitude 50° 37' N

Longitude 127° 28' W

MINING DIVISION

Nanaimo

NTS LOCATION

Map 92L/12E, 92L/11E

OWNERS

Utah Mines Ltd.

Gordon Milbourne

OPERATOR

Utah Mines Ltd.

AUTHOR

Gordon A. Clarke

DATE SUBMITTED

October 25, 1984.

GEOLOGICAL BRANCH
ASSESSMENT REPORT

13,009

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Introduction

Between September 11, 1984, and October 1, 1984, a reconnaissance IP survey was carried out along 16 logging roads and 2 cut lines on claims adjacent to the Island Copper Mine. The purpose of these surveys was to provide a first-pass evaluation of sulphide potential at minimal cost in order to reduce line-cutting costs.

A total of 20.1 line miles were surveyed using a dipole-dipole array. Of these, 15.2 line-miles (or 75.5%) were within the Central group of claims. A 200 foot (61 m) dipole separation, was employed for all lines except BR9A where a 100 m separation was tried. Resistivity and chargeability information was collected for 4 separations $n=1,2,3,4$ using a Scintrex IPR-11 Time Domain IP receiver and a Crone 250W transmitter powered by a 24V battery. Stainless steel electrodes were employed for both potential and current electrodes and Scintrex multi conductor cables were employed on all roads except Old Rd.

Some problems with data quality are incurred by performing the surveys on roads. Firstly, it is occasionally difficult to locate electrodes away from the road ballast material. As a result, spurious data can result from a combination of high contact resistance (which causes low currents and/or arcing at the current electrode) and polarization at the electrodes. The second problem stems from the standard resistivity formulas not being applicable to data not collected in a straight line. For a reconnaissance survey however, the effort required to digitize each station and calculate the correct resistivity based on a generalized formula is not warranted.

The survey area is located some 15 km south of Port Hardy via paved highway. All logging roads surveyed are accessible by 2 wheel drive vehicle.

The area surveyed is underlain by the Karmutsen, Quatsino and Parson Bay members of the Upper Triassic Vancouver Group and in small part by the Bonanza Volcanic member of the Bonanza Group. Jurassic "Island Intrusions" are present in what are locally known as the Island Copper Dyke and the Rupert Stock. Also, a hornblende porphyry intrusive is known in the survey area. It is shown as stock-like on Map 1 but may be a series of dykes and sills.

RESULTS

Using a value of approximately 50 msec as significantly anomalous, 5 anomalous zones have been identified as well as a few single line features which are not grouped. The main anomalies have been designated 84-1 through 84-5 on the accompanying Map 2.

Anomaly 84-1

This feature appears on lines BR9, BR9A and BR9B with a possible extension towards line MB between stations 15E and 20E. Because most of line BR9 is anomalous, it is felt that the anomaly strikes roughly along BR9 with its southern limit indicated by the BR9A and BR9B data. Northward and westward limits cannot be determined by this survey but the anomaly is not believed to extend very far northward.

The source of the anomaly is likely a local increase in pyrite and/or clay alterations in the Parson Bay sediments. Such a feature may be related to a hornblende porphyry intrusive mapped to the southeast and apparently striking parallel to the anomaly.

Anomaly 84-2

This is a large roughly circular feature with a diameter of 1100 metres, located on lines BR10, BR10B, BR10C and BR10D between 33W and 54W. A series of anomalous zones between 63E and 85E on Line MB indicate that an eastward extension of the anomaly lies just off the MB road, probably to the south.

Chargeabilities are quite high, typically greater than 70 msec. and in general, show an increase with depth. Resistivities are generally in the 300-600 ohm-metre range and do not exhibit any significant patterns.

The relatively high chargeabilities are likely a result of a local increase in sulphides and/or clays. This is probably coupled with a higher than normal graphite content in the Parson Bay shales. No local heat source is known, but the nearby coarse (volcanic ?) clastic sediments may indicate proximity to a volcanic centre. Alternately, the anomaly may be related to the "Island Copper" dyke some 2 km southwest.

Anomaly 84-3

This is an elongate feature possibly 1100 m by 300 m found on line BR 10D between 3W and 23W. The eastern end appears to cross line RL, between 41N and 60N and ends on line RL1. Chargeabilities are high (60 - 90 msec) on line BR 10D and somewhat lower on the RL lines. It appears that line BR 10D lies along the strike of the anomaly which then closes off to the east. The source of this anomaly is probably similar to that of 84-2.

Anomaly 84-4

This is a moderately strong anomaly located on lines 29W and 45W centred at about 90N. The north and south limits of the anomaly can be seen from the data but an east-west extent cannot be determined. Lack of response on line MB probably limit the westward extension to less than 350 m west of 45W. The anomaly has a moderate resistivity but is flanked to the north by a sharp

resistivity increase with a corresponding chargeability decrease. These response signatures are typical of a contact, probably between the Parson Bay and the Quatsino formations. Anomaly 84-4 appears to represent increased mineralization on the Parson Bay side of this contact.

Anomaly 84-5

This feature extends from 40N - 55N on 29W and is closed off to the south by the Old Rd. data. The line 29W data indicate a strong anomaly but the data are quite noisy. The subcrop geology is believed to be Parson Bay or lower Bonanza, but resistivities are abnormally low for these formations. The large number of very low resistivities indicates that salt water incursion has likely taken place along either a structural (fault or contact) or stratigraphic feature. The resulting signal is then too small to provide reliable chargeability data. No east-west limits to this anomaly can be determined from the available data.

The anomaly appears to be caused by an increase in sulphides in the Bonanza and/or Parson Bay formations adjacent to the "Rupert" stock. There may be some structural control related to the salt water incursion.

Miscellaneous IP Anomalies

- a) Three small, low amplitude features lie on line MB between 90E and 110E. These features appear to be related to each other and to a coincident resistivity high. The cause of these features is thought to be associated with the Quatsino/Karmutsen contact observed in nearby roadcuts.

- b) A spotty anomaly between 15W and 25W on line R441 also appears to correspond to non-economic mineralization located on the Quatsino/Karmutsen contact. The associated resistivity low is almost certainly a geometric effect due to the sharp bend in the road.

- c) Spotty high chargeabilities with relatively high associated resistivities on line MB between 15E and 40E are probably indicative of proximity to the Quatsino/Karmutsen contact which lies just north of this section of line.

Miscellaneous Resistivity Anomalies

- a) Two different, narrow resistivity lows are considered to indicate the presence of faults. This interpretation of the feature on line MB at 44E is supported by the topographic feature (a linear gully) at that location. Being right at the end of the line, this interpretation of the feature on line R441 at 0E is much more speculative.

COSTS

WAGES:

1) Field Supervisor - Sept. 11 - Oct. 1	= 3 weeks @ \$461.54/week	\$ 1,384.62
2) Field Crew -		
a) Sept. 11 - 28	= 15 days	
b) Sept. 13 - 28	= 13 days	
c) Sept. 11 - 17	= 3 days	
d) Sept. 23 - 28	= 5 days	
	<u>36 man-days @ \$115.00</u>	4,140.00
3) Supervision, Data Processing and Evaluation -		1,600.00
<u>COMPANY OVERHEAD</u> 25% of Supervision and Labour (1 and 3)		895.39

FOOD AND ACCOMMODATION

Field Supervisor - Sept. 11 - Oct. 1		
a) Motel 21 days @ \$25.68/day	= \$ 539.28	
b) Food, 21 days @ \$15/day	= <u>315.00</u>	
		854.28

TRANSPORTATION

Field Supervisor - Sept. 11 - Oct. 1		
Van Rental @ \$652.70/mo. + 7¢/km		433.50

FREIGHT AND MISCELLANEOUS SUPPLIES 300.00

Total for 20.1 mi (32.3 km)		<u>\$ 9,607.79</u>
Unit Cost = \$478.00/mi (\$297.45/km)		

Central Group = 15.2 miles (24.5 km)		
Cost for Central Group = 15.2 miles x \$478.00/mi.		7,265.60

REPORT PREPARATION 400.00

TOTAL COST CENTRAL GROUP: \$ 7,665.60

STATEMENT OF QUALIFICATIONS

- Michel Godbout was responsible for the field work and G.A. Clarke was responsible for interpretation of this report.

Qualifications are outlined below:

G.A. Clarke - Geologist for Utah Mines Ltd., Port Hardy, B.C.

Completed B.Sc (honors), (Geophysics) at University of Manitoba, in 1976; employed by Hudson Bay Oil & Gas, and Saskatchewan Dept. of Mineral Resources during the 1975 and 1976 summer field seasons as geophysical assistant; September, 1976 to February, 1977, Inco Limited, as a geologist in Thompson, Manitoba; Lloyd Geophysics, February, 1977 to May, 1979, as a geophysicist; Utah Mines Ltd., from October, 1979 to present, as geologist/geophysicist, presently under supervision of John A. Fleming.

M.A. Godbout - Geophysical Technician for Utah Mines Ltd. Vancouver, B.C.

Employed seasonally with Utah Mines from 1976 - 1980 out of Toronto, Ontario. Worked with Utah Mines on a full time basis between 1980 - 1982. Employed with the same company on seasonal basis during the period of 1983 - 1984.

Responsibilities included management of field crew and equipment and collecting and processing of field data of various geophysical techniques employed.



- SCHWANKE FUCHSI
- LATE QUATERNARY
- CRETACEOUS SEDIMENTS
- JURASSIC INTRUSIVES
- QZc FELDSPAR PORPHYRY
- BRECCIAS
- QUARTZITE
- BONANZA VOLCANICS
- BRECCIA (FORMATION?)
- FLOWS AND TUFFS
- SAND, SILT, CLAY
- WEST TRENCHAL
- PARSON BAY FORMATION
- QUARTZITE FORMATION
- KAMUTSEK FORMATION

- DIAMOND DRILL HOLE
- KNOWN POSITION
- ESTIMATED LOCATION
- FAULT
- BEDROCK

922 11
11 726

MAP 1

LEAH MINE LTD
ISLAND COPPER MINE

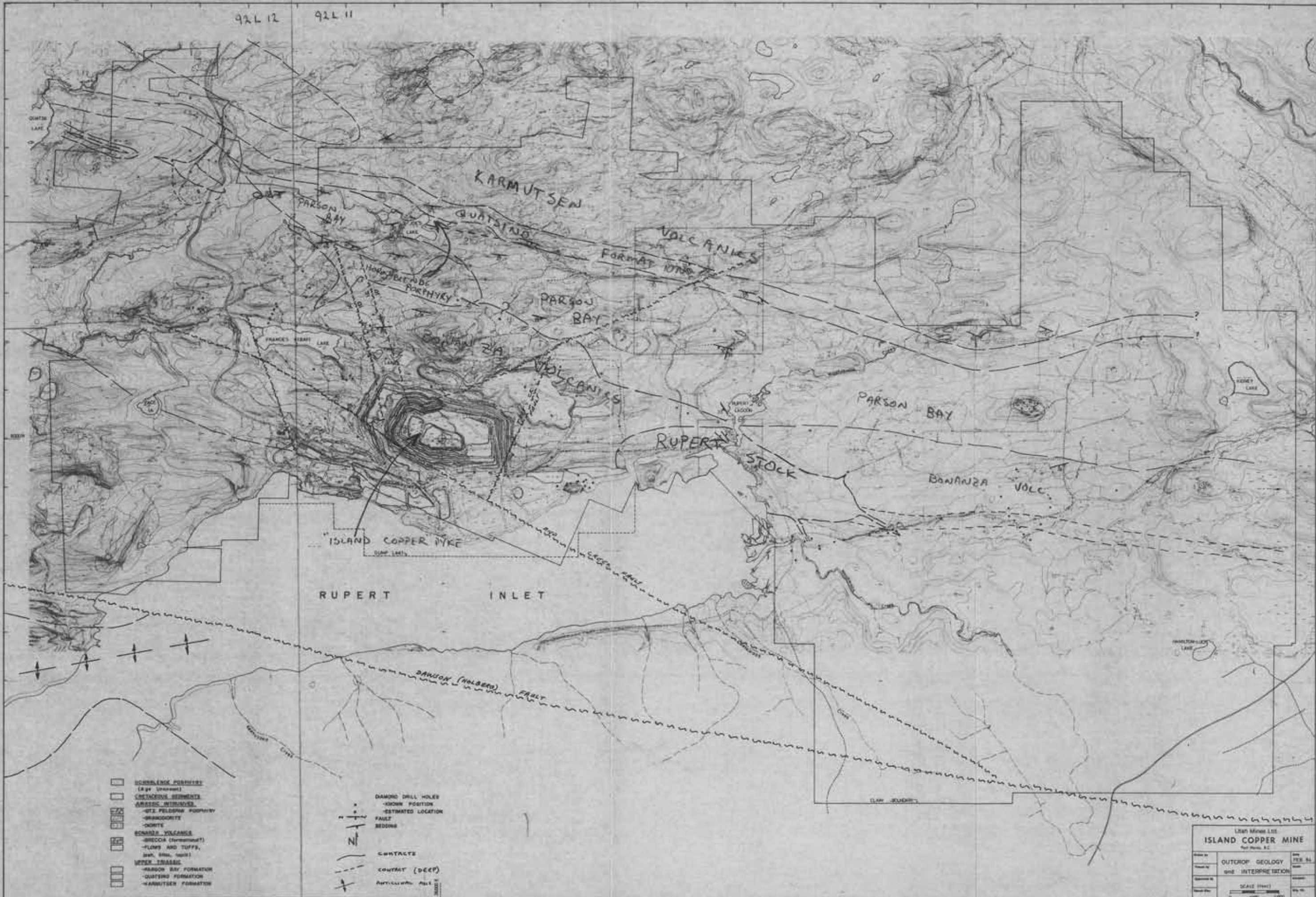
OUTCROP GEOLOGY
and INTERPRETATION

SCALE 1:50,000

1:50,000

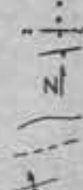
92L 12

92L 11



- DUMBLETON FORMATION (Age Unknow)
- METACONG FORMATION
- ARABIAN INTERLUDE
- ST. FELSPAR PORPHYRY
- GRANODIORITE
- QUARTZITE
- EDWARD VOLCANICS
- BRECCIA (Intruded)
- FLOWS AND TUFFS, and. and. and.
- UPPER BASALTIC
- PARSON BAY FORMATION
- QUATSING FORMATION
- KARMUTSEN FORMATION

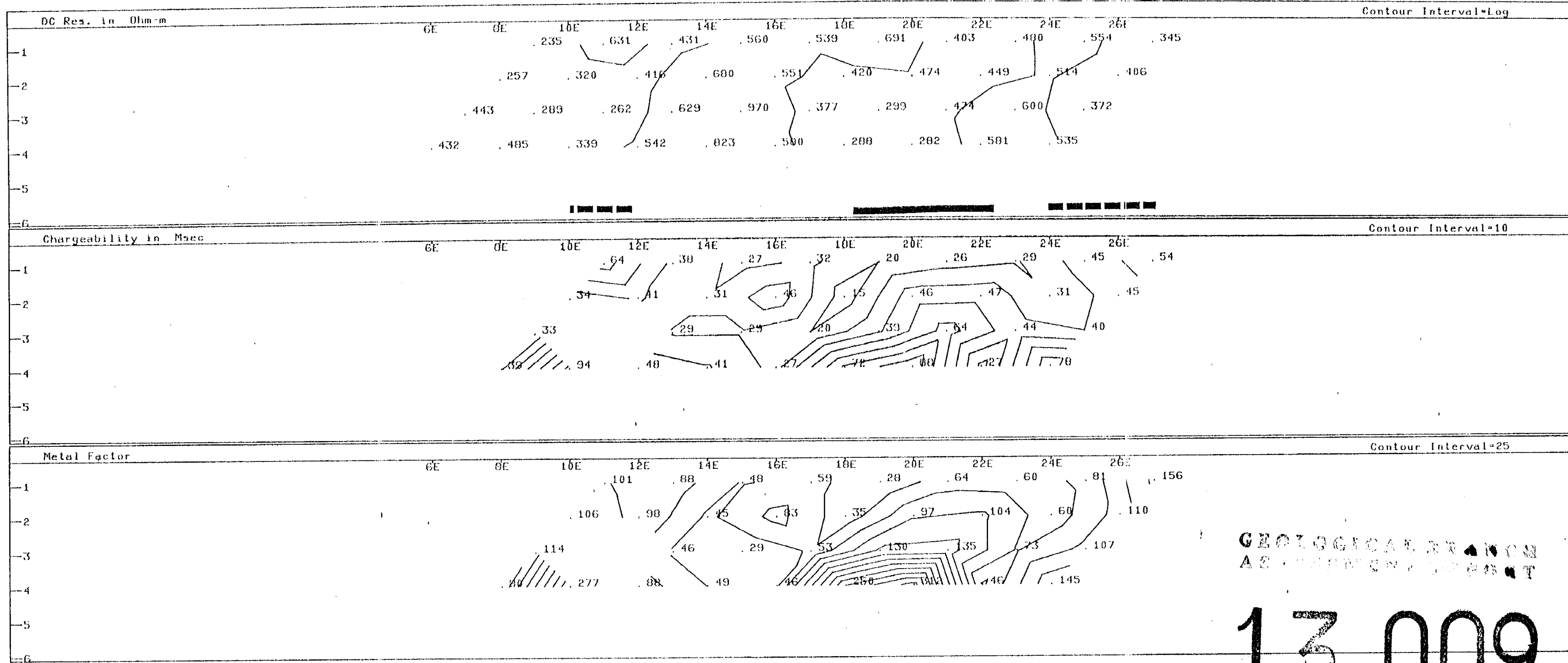
- DIAMOND DRILL HOLES
- KNOWN POSITION
- ESTIMATED LOCATION
- FAULT
- BEDDING
- CONTACTS
- CONTACT (DEEP)
- ANTICLINE AXIS



Island Mines Ltd.	
ISLAND COPPER MINE	
Map No. 32	
Scale in Feet	Scale in Meters
1 inch = 1000 feet	1:3048
1 cm = 30 meters	1:3000

92L 12

92L 11



ISCU
Line OLD ROAD

IP SURVEY
26/09/84
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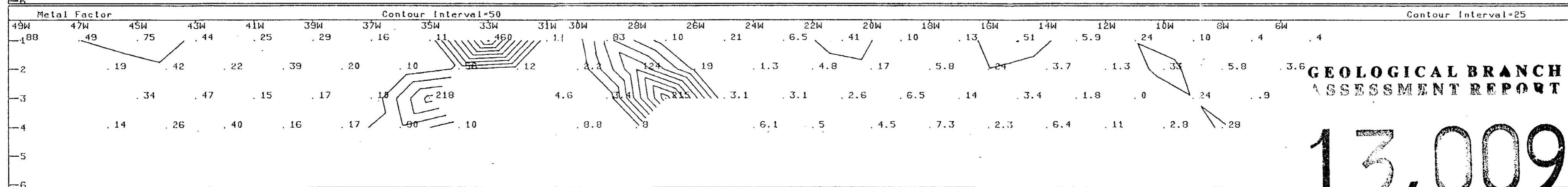
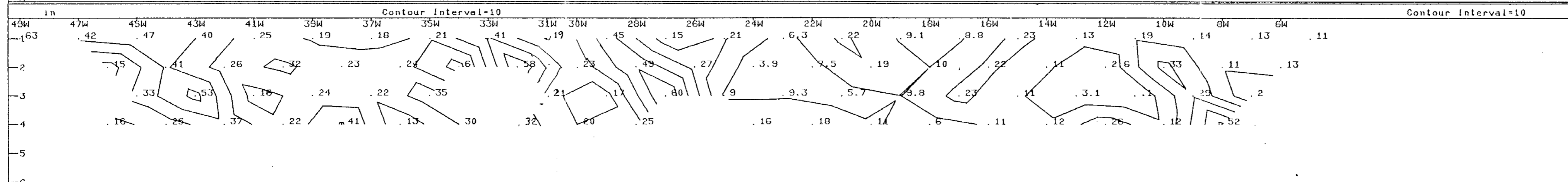
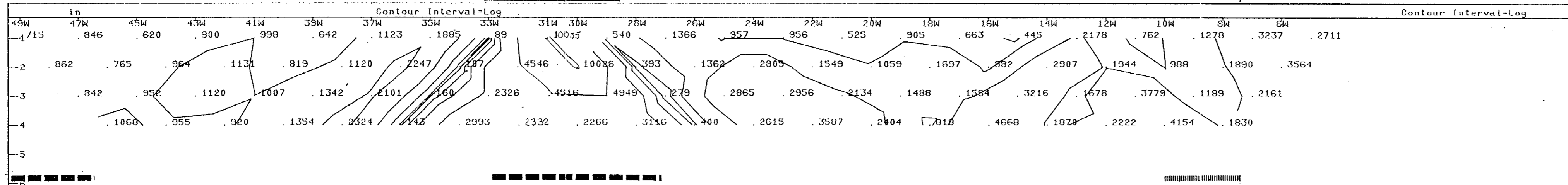
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ASST. GEOPHYSICIST



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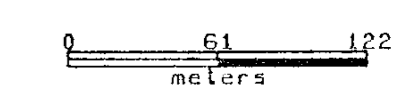


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Line BR8

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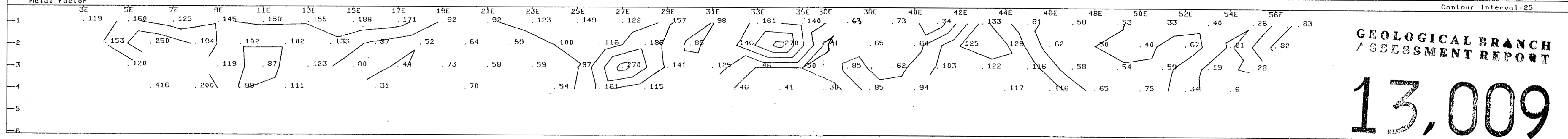
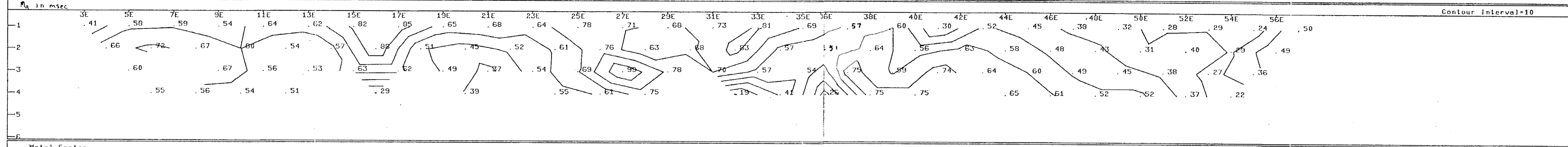
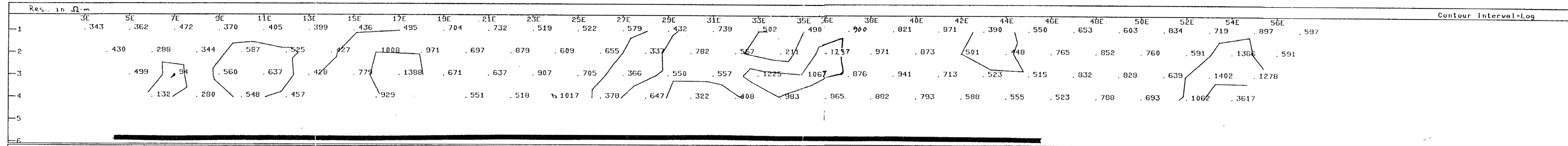
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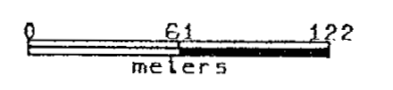
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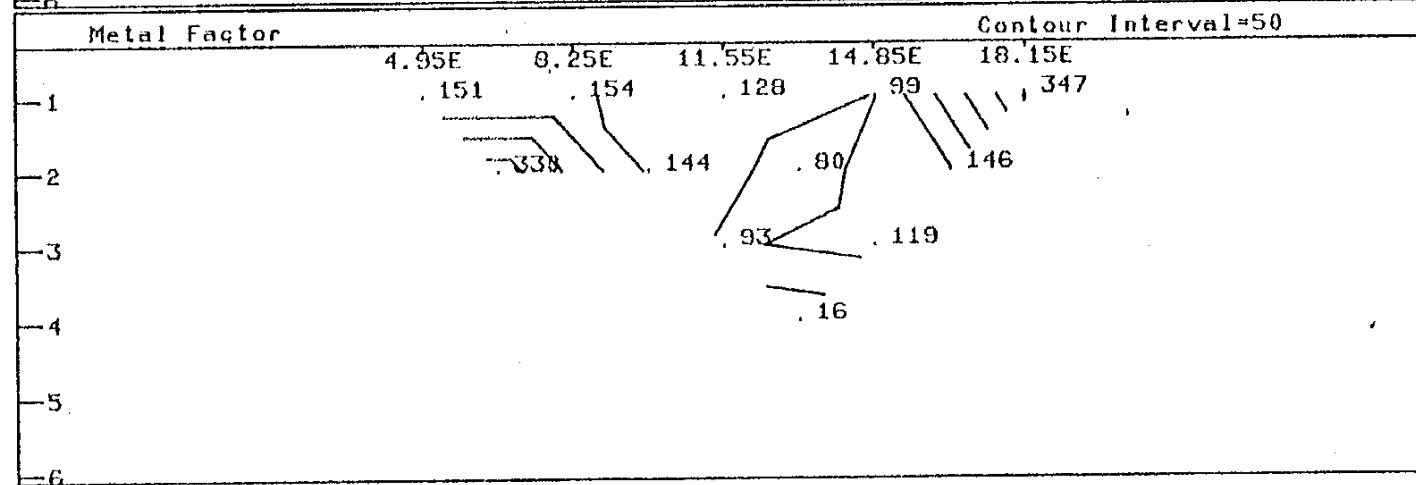
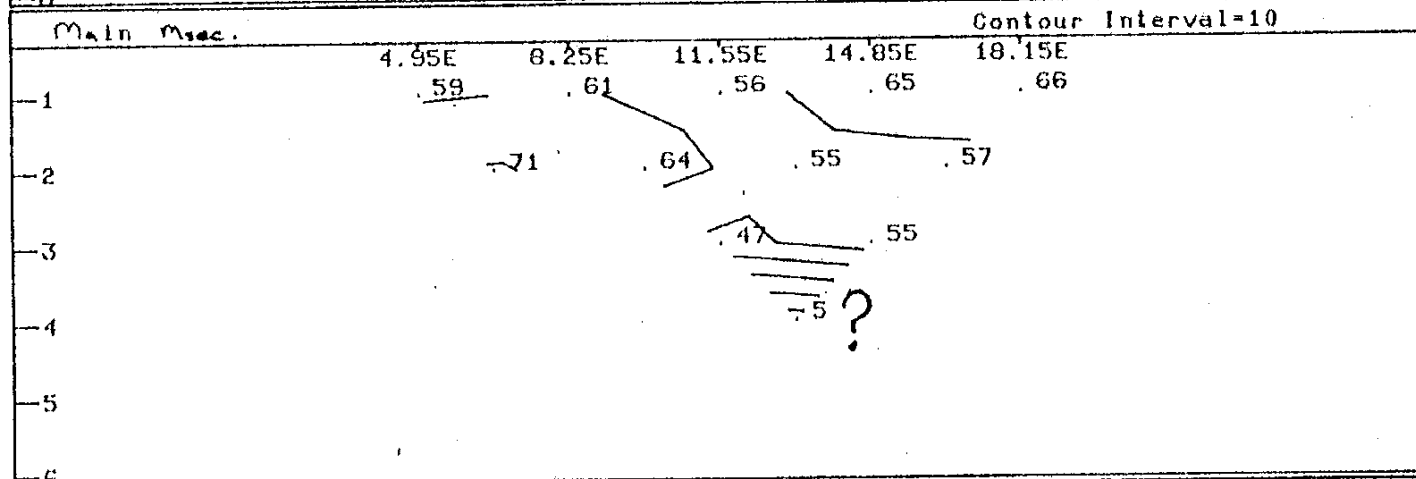
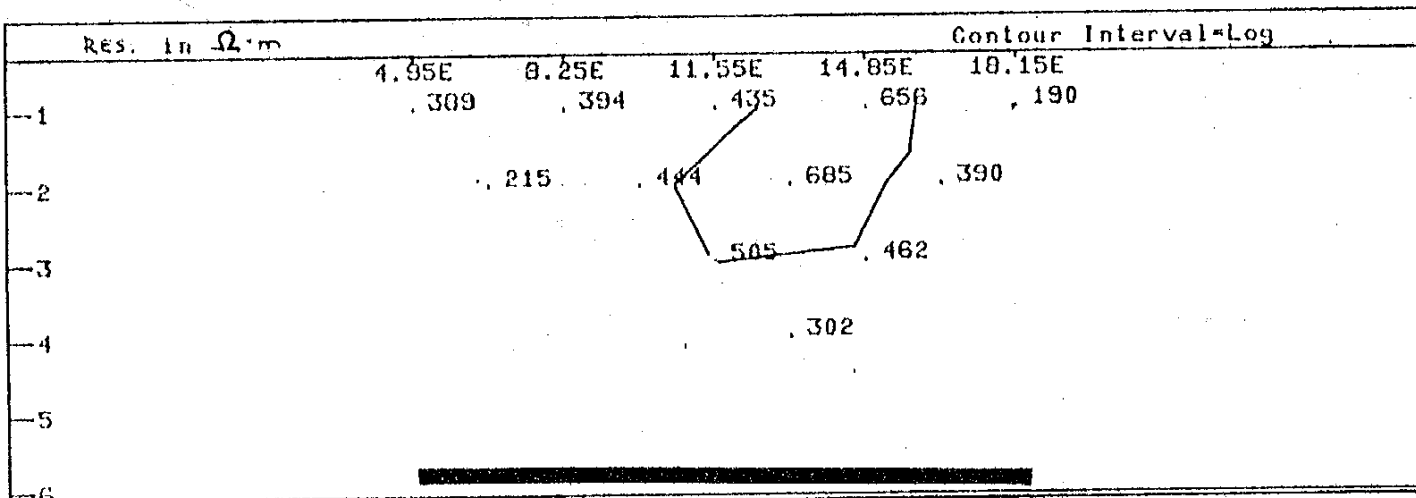
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Line BR 9

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Line BR 9A

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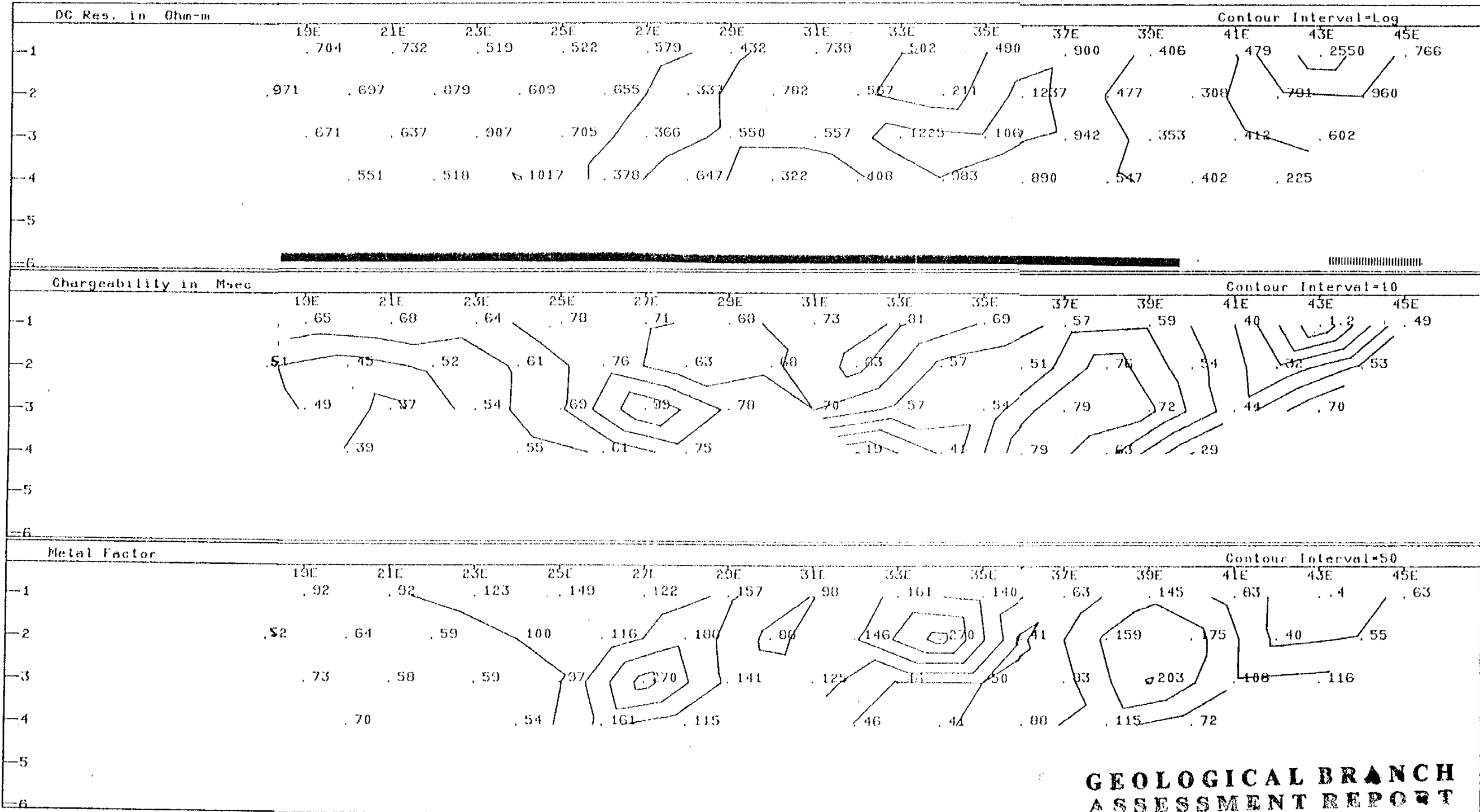
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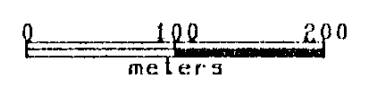
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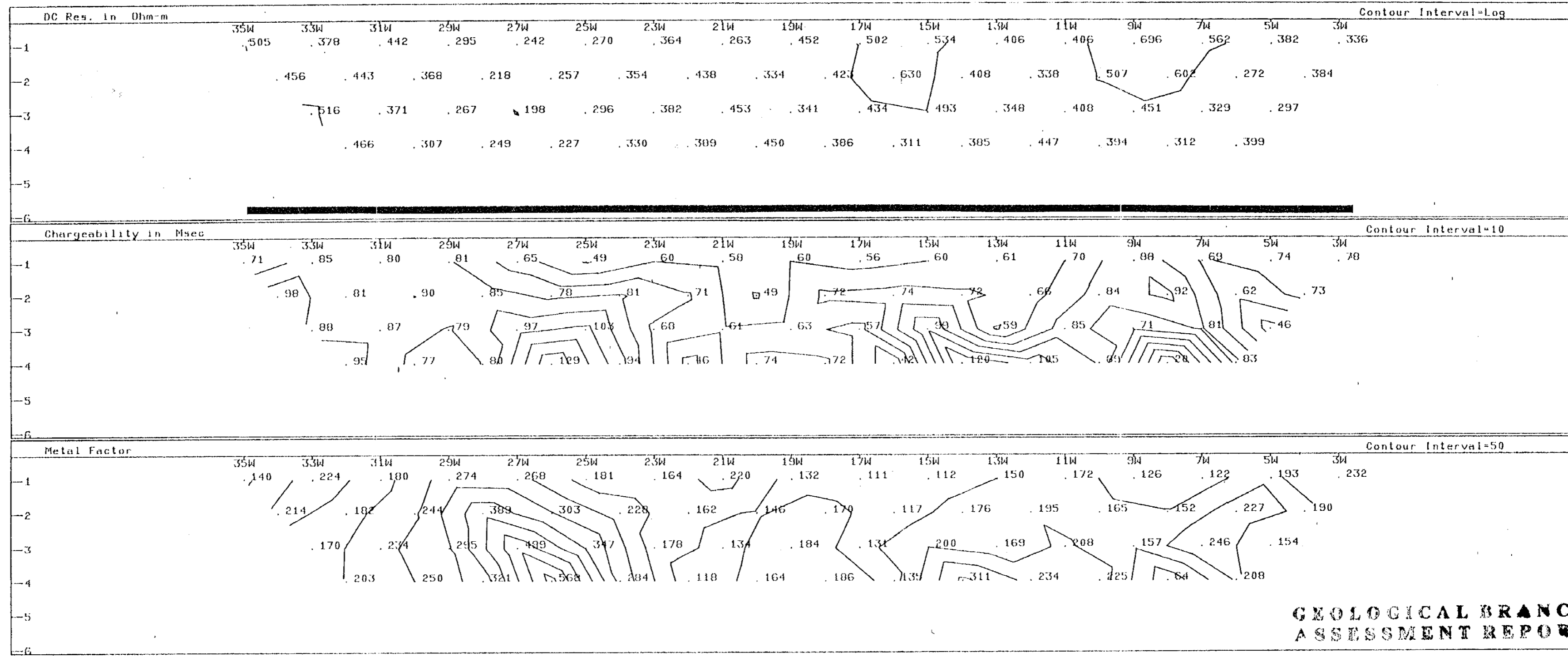
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ISCU
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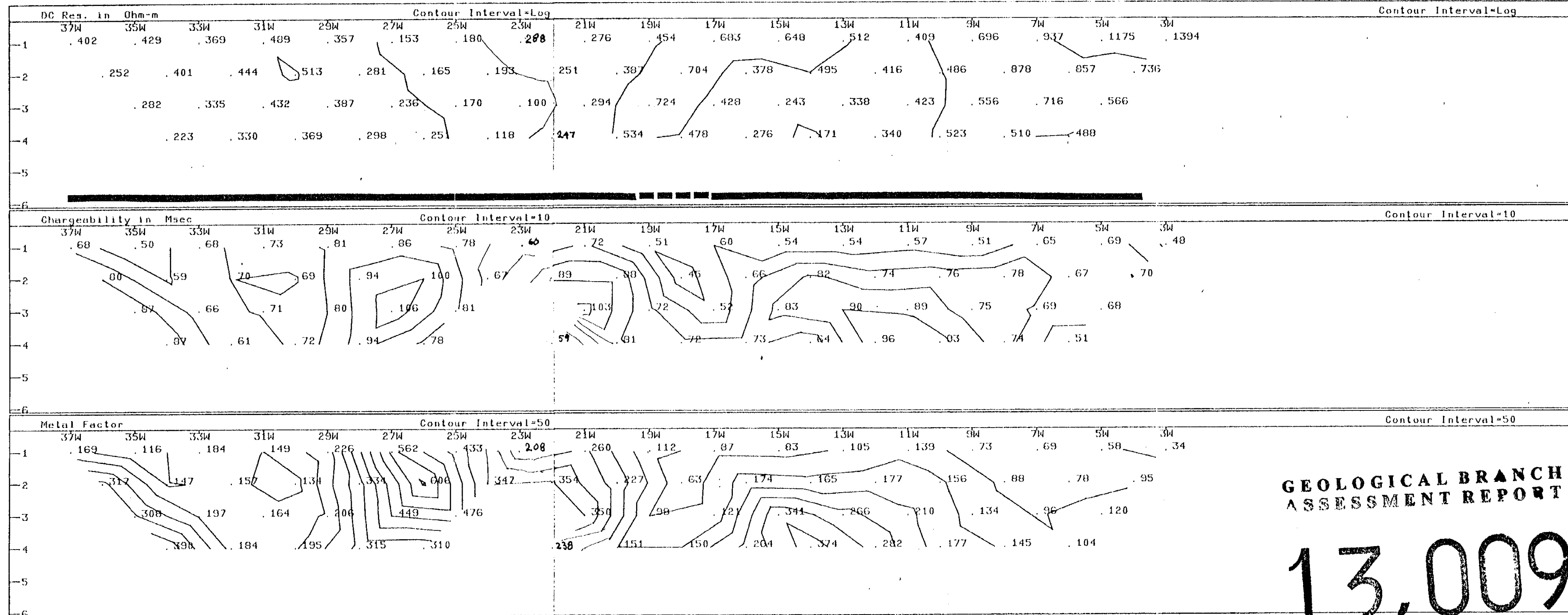
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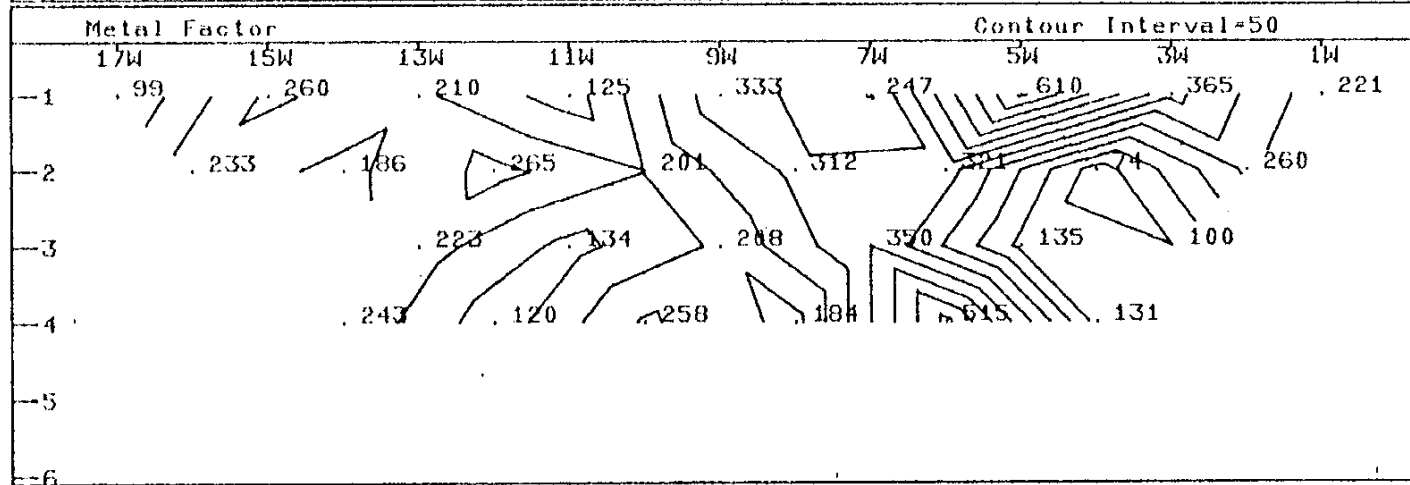
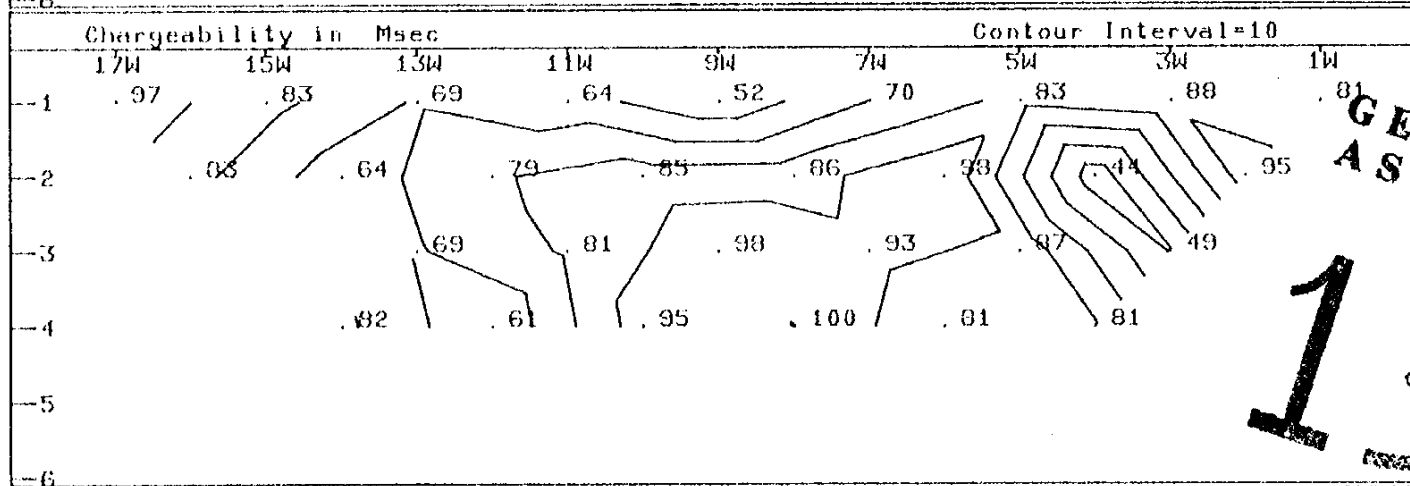
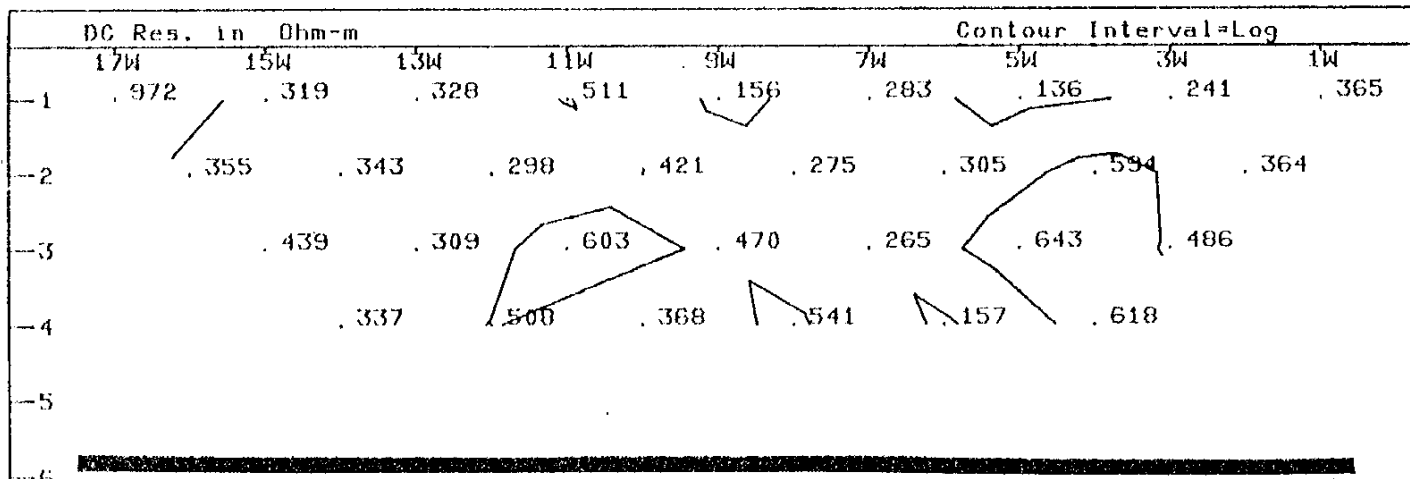
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Line BR10C

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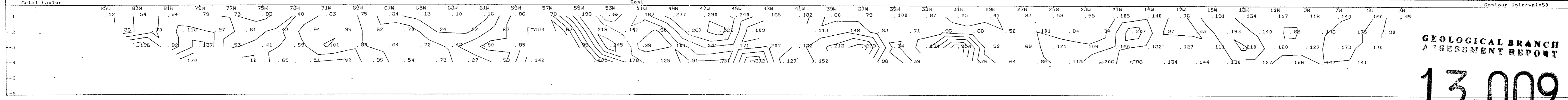
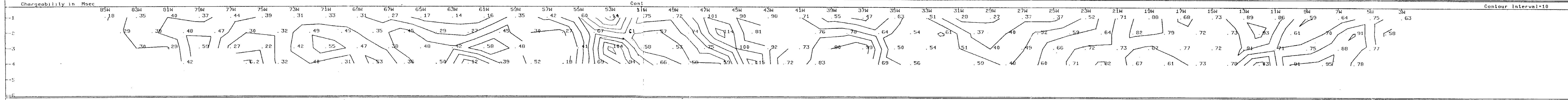
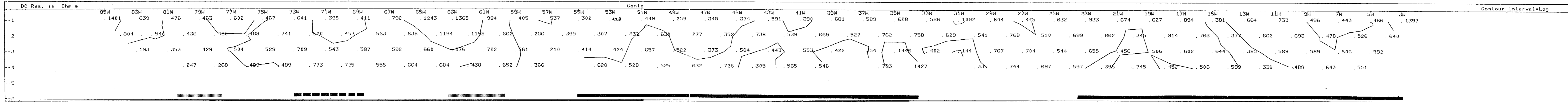
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Line BR10D

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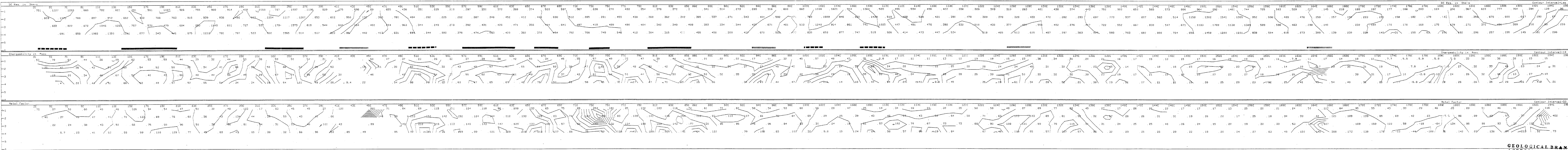
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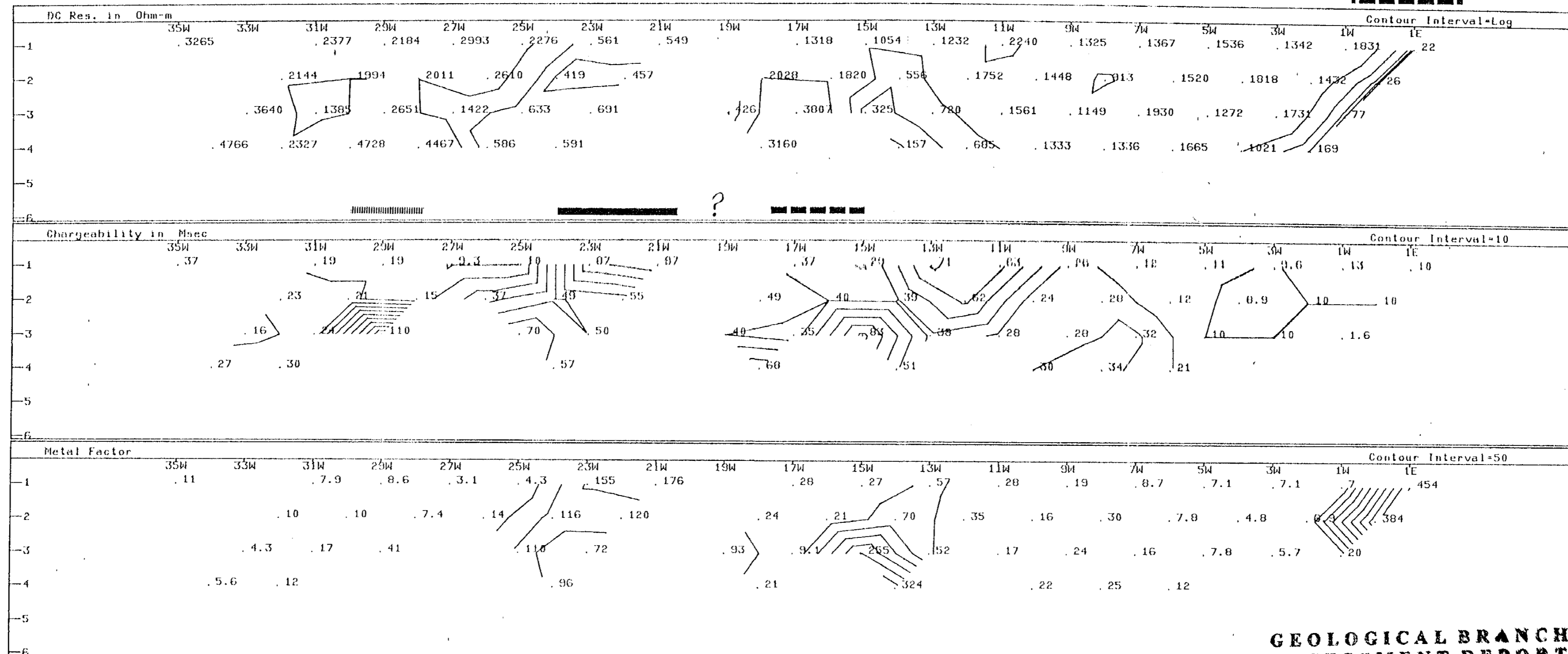


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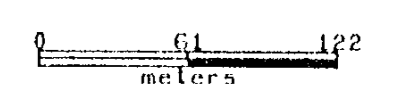


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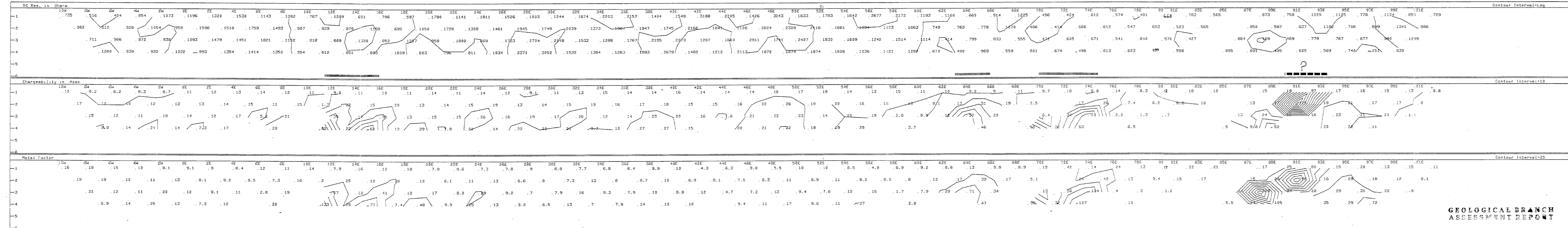
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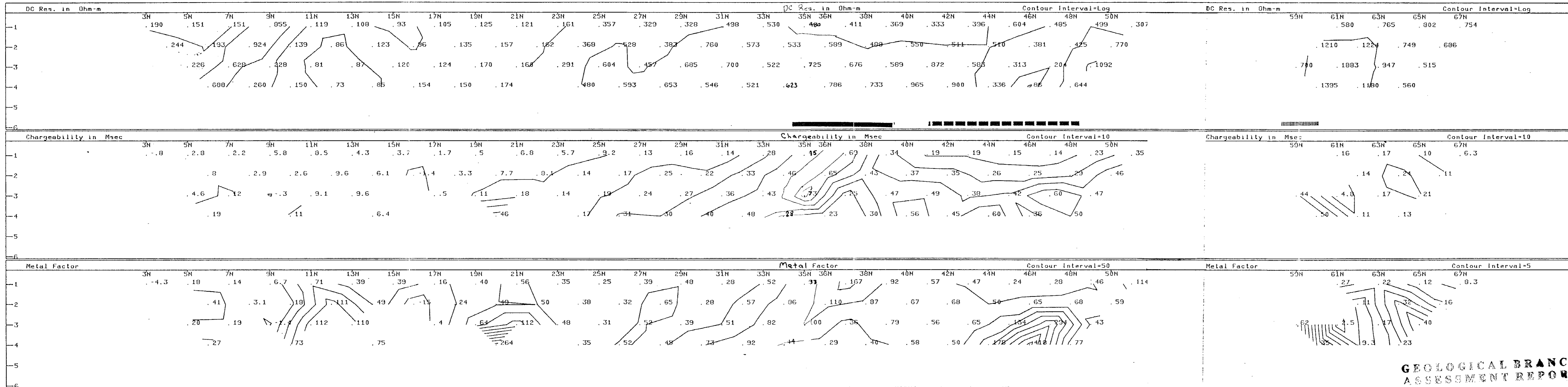
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Line RL

IP SURVEY
19/09/84
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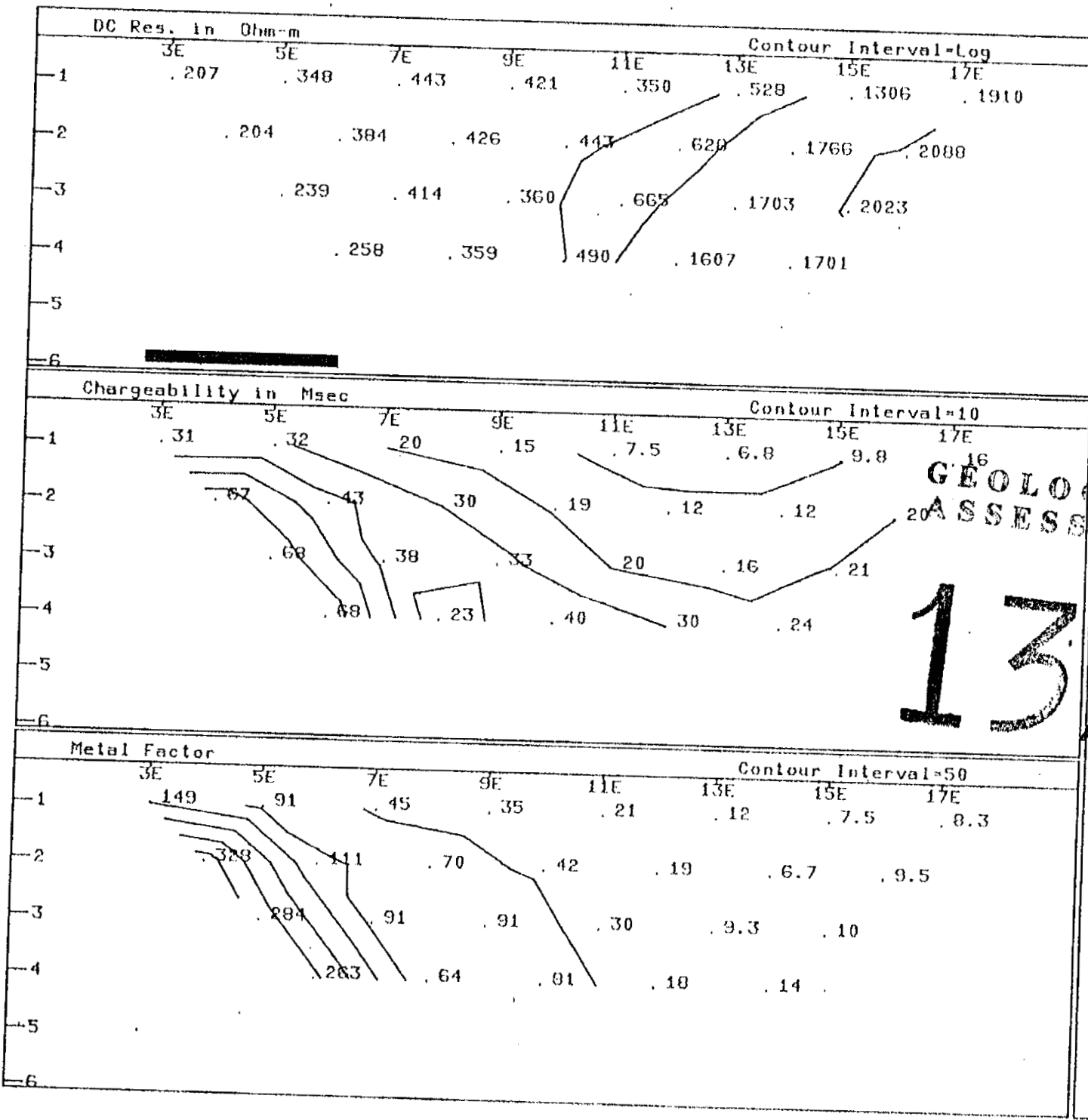
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Line RL1

IP SURVEY
19/09/84
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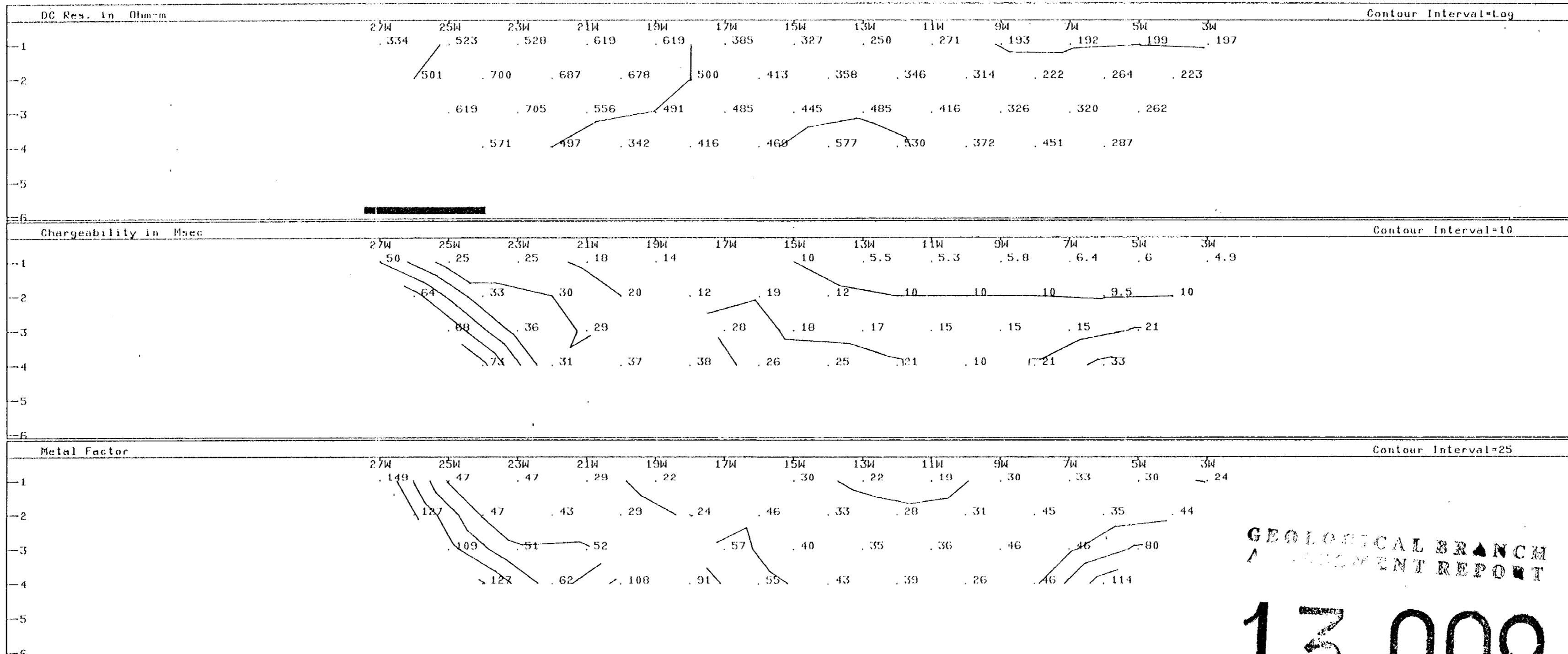
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 Line RL2

IP SURVEY
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 Dp-Dp array

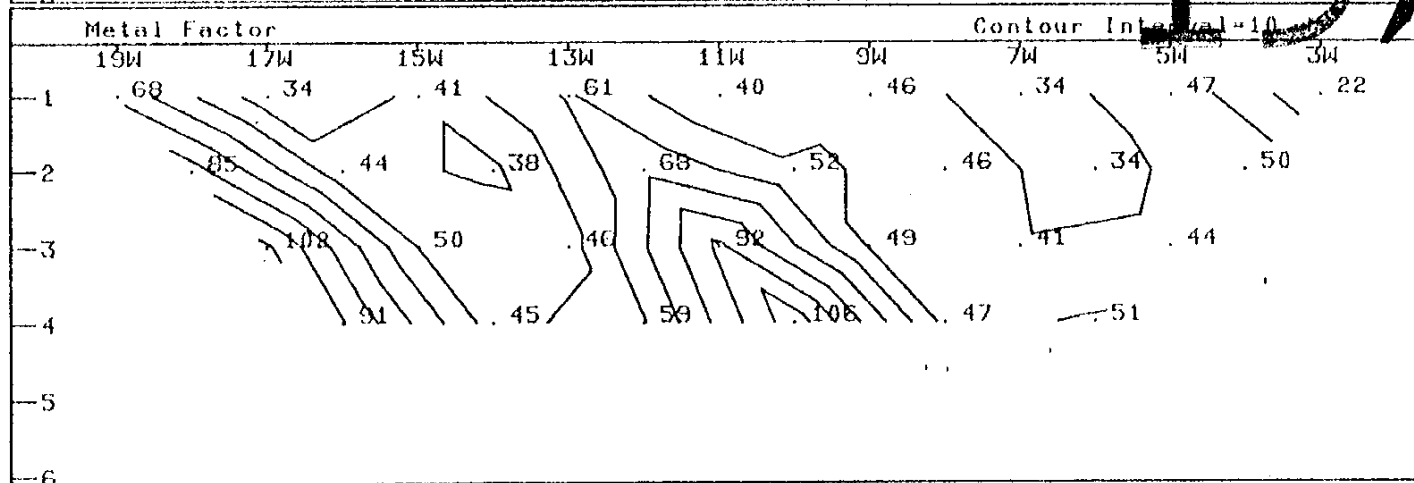
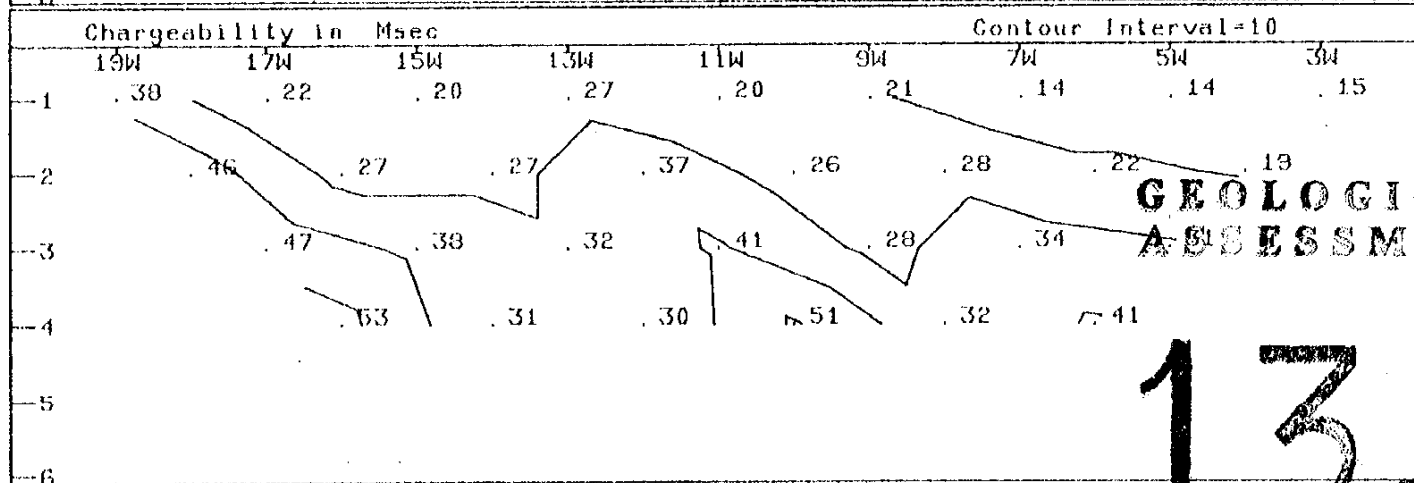
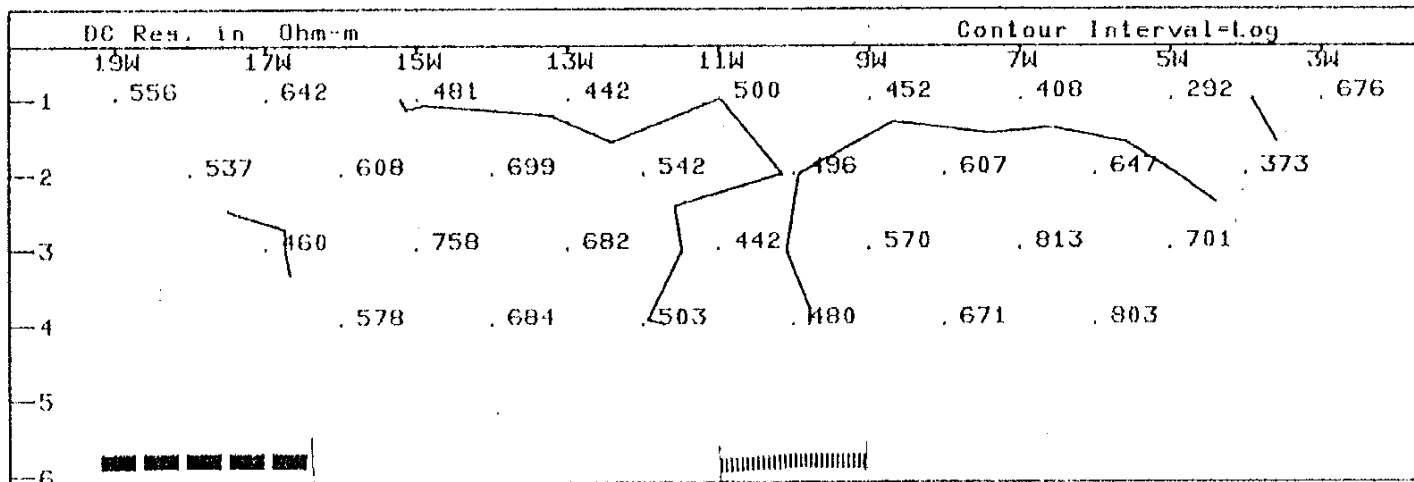
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0 61 122
 meters

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Line RL3

IP SURVEY
20/09/84
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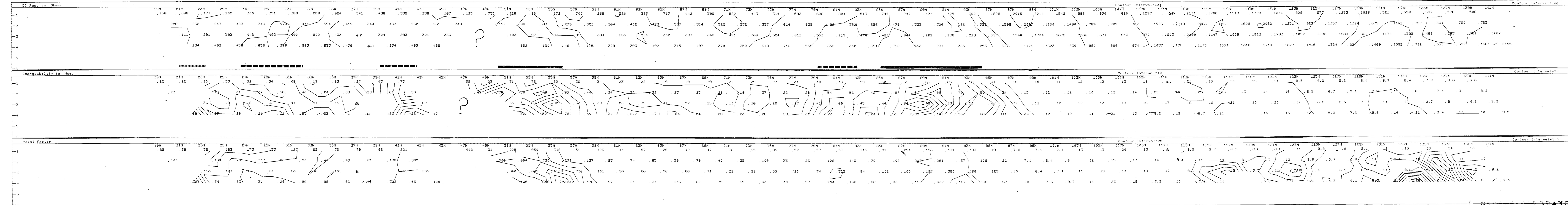
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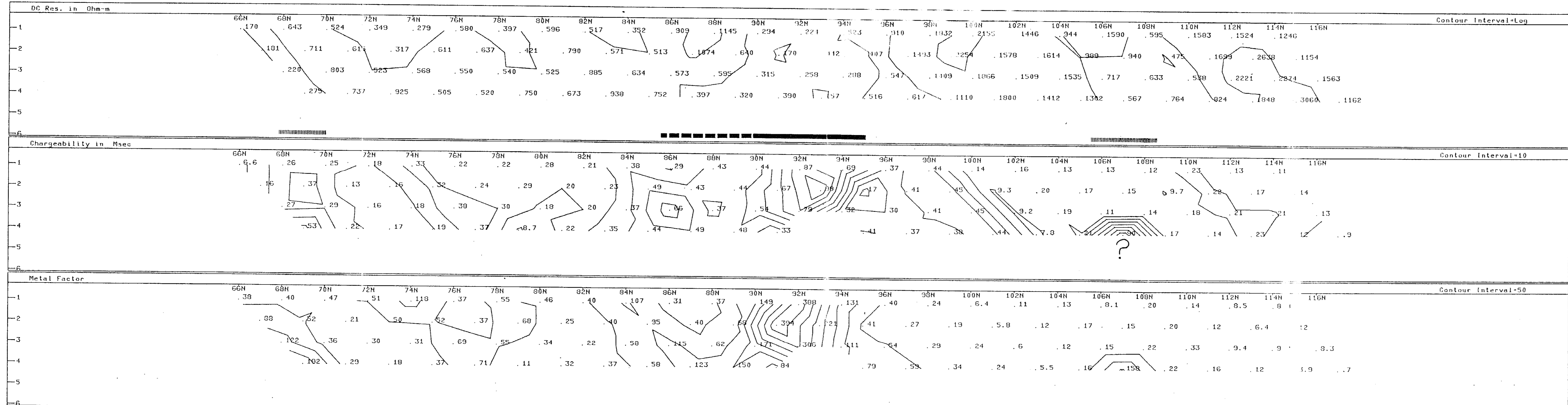


ISCU
Line 29W
IP SURVEY
26/09/84
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UTAH MINES
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GEOTECHNICAL BRANCH
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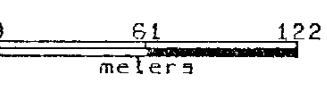
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Line 45W

IP SURVEY
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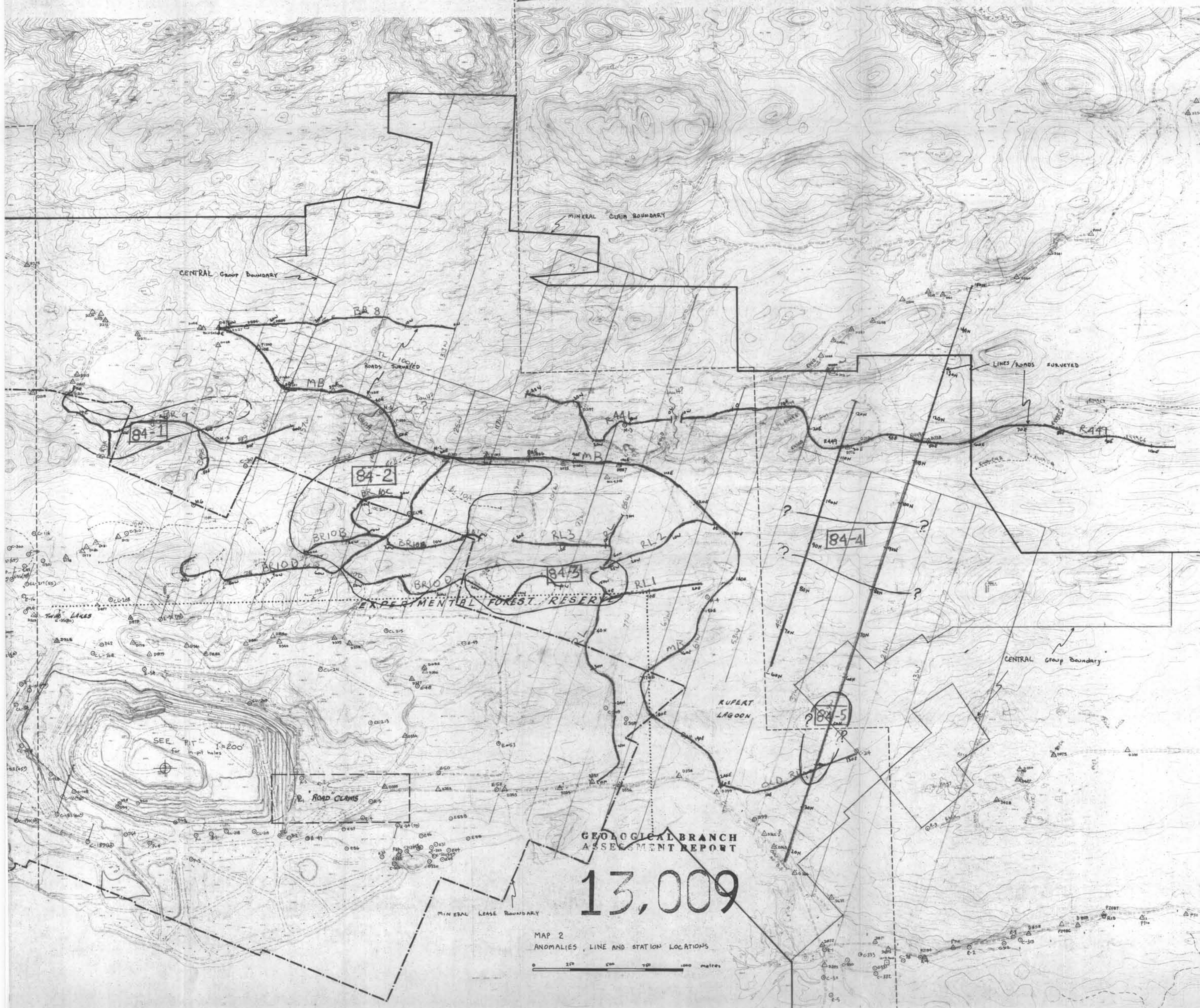
UTAH MINES
Ltd.
Toronto, Canada

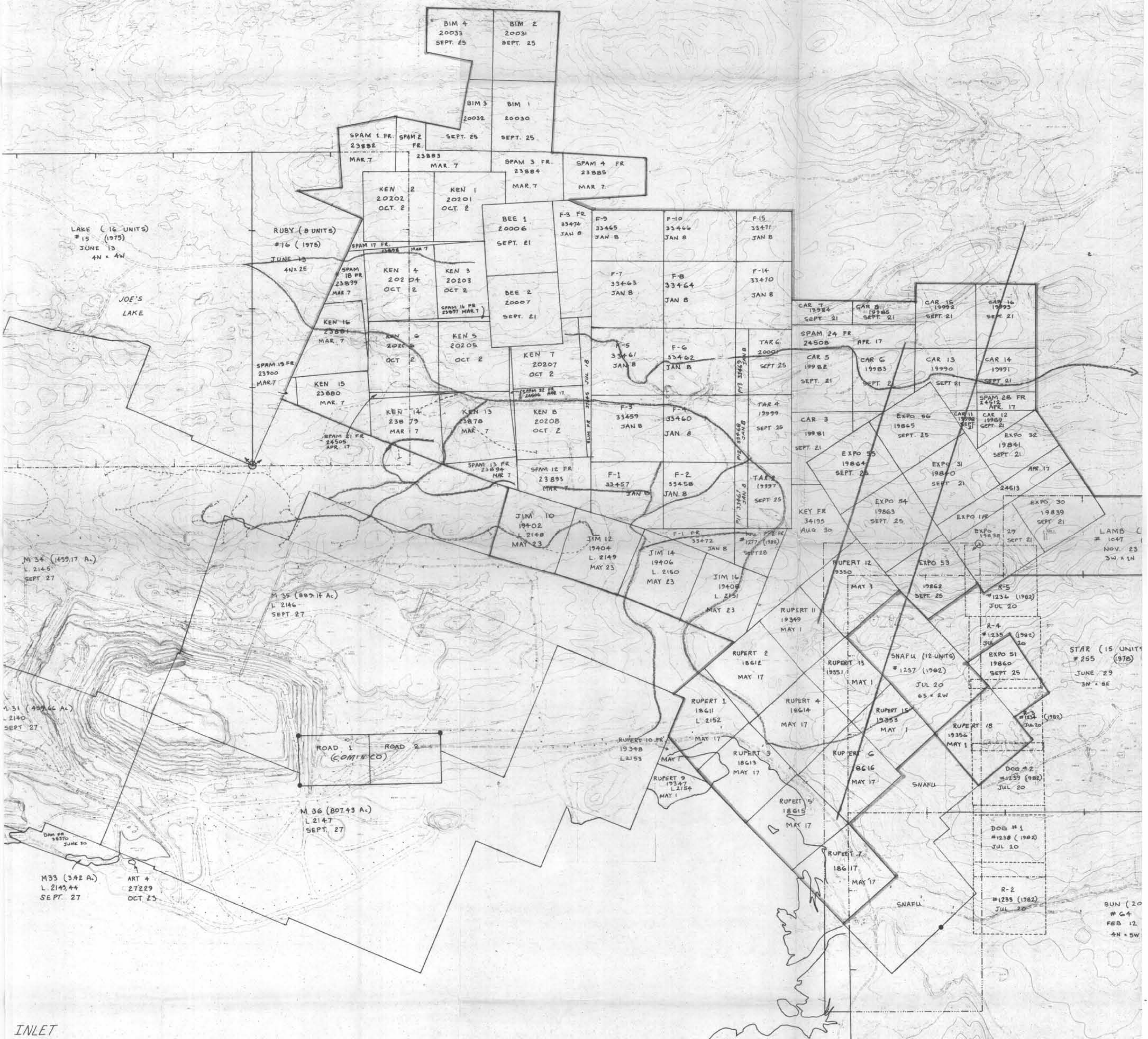
GEOLOGICAL BRANCH
ASSESSMENT REPORT

13,009

TFL 39

TFL 25





GEOLOGICAL BRANCH
ASSESSMENT REPORT

13,009

MAP 4
CENTRAL Group of Mineral Claims

Utah Mines Ltd.		
ISLAND COPPER MINE		
Port Hardy, B.C.		
Drawn by	MINERAL PROPERTY	Date
AR		MAY 84
Traced by	STATUS MAP	Scale
Approved by	1" = 1,000'	Revision
JF		
Bench Elev.		Dr. No.



- POSTS/PINS CONFIRMED BY MINE SURVEYORS
- LCP'S - MGS CLAIMS
- EXTENT OF MILBOURNE'S 7500' ZONE OF INTEREST*
- MILBOURNE BOUNDARY (1972 EDITION)
- LIMITS OF CLAIMS SURVEYS

MARY (16 UNITS)
965 (1981)
JUL 22
43 x 4W